

# TINKERERS

AN ORIGINAL  
TALE OF THE  
NEAR FUTURE  
BY DAVID BRIN

SCRIPT BY  
DAVID BRIN  
AND JASON LAND

ART BY  
JAN FEINDT





*IMAGINE A NATION THAT  
HAS LOST ITS  
ABILITY AND DESIRE TO  
MAKE THINGS....*

THAT'S THE WORLD OF OUR STORY,  
"TINKERERS." IN THE NEAR-TERM  
FUTURE, WE FIND A TOWN WHERE  
YOUNG PEOPLE PLAN TO DEVOTE THEIR  
CAREERS TO SERVICE JOBS, IN A  
LAND WHERE THE BIGGEST BRAND  
NAMES ARE FROM OVERSEAS.

BUT THEN, A CATASTROPHIC EVENT  
CHANGES EVERYTHING FOR THE TOWN  
AND OUR HERO, A YOUNG MAN  
ON A QUEST TO LEARN THE  
REASONS FOR DECLINE EVEN AS HE  
WORKS TO REVERSE IT.

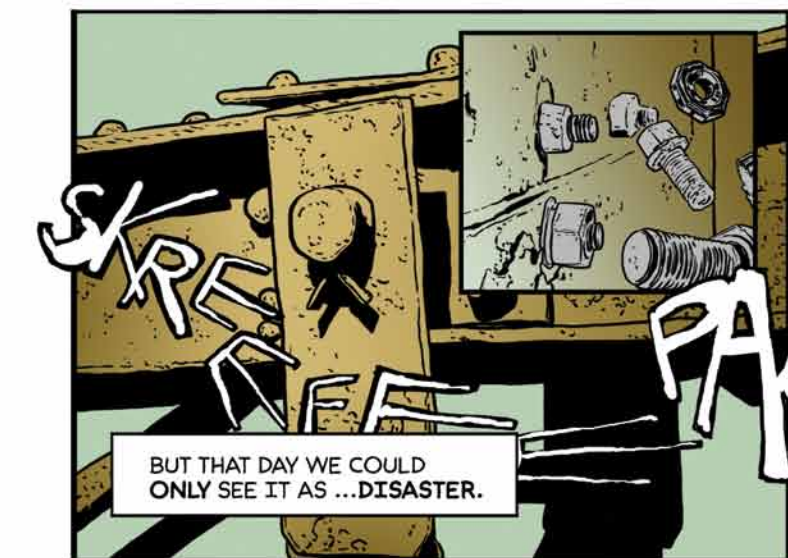
WHAT DOES HE FIND? *READ ON...*



THEY SAY HISTORY CAN TURN  
FOR THE WANT OF A NAIL...



...OR A RUSTY BOLT.



BUT THAT DAY WE COULD  
ONLY SEE IT AS ...DISASTER.



WHAT  
WAS THAT?



IT HAPPENED LESS THAN A KILOMETER FROM THE HIGH SCHOOL -- ON GRADUATION DAY.

GET READY, YOU'RE GOING UP SOON.

...NEXT IS LEO VANPELT, WHO WILL STUDY AGRICULTURE AT STATE COLLEGE...

...JOEL KAPLAN PLANS A CAREER IN DRAMA ...

...MONIQUE LAFLEUR HAS A SCHOLARSHIP TO PLAY LONG TENNIS AT STATE, WITH RECRUITERS SIZING HER UP TO GO PRO! GOOD LUCK MONIQUE!

...SAM MOLINA WON A HUMAN RESOURCES TRAINING SLOT FOR YUNGSAN CHAEBOL...

...NOW DON'T LAUGH. DANNY MAY BECOME A FAMOUS SCULPTOR! OR BLACKSMITH...

THEN IT WAS MY TURN.

...AND HERE'S DANNY NAKAMURA. DANNY LIKES TO BEND METAL!

WAY TO GO BENDER!

THAT WAS IT, FIVE WHOLE SECONDS OF GLORY.

I WAS USED TO TEASING.

AND NOW DOROTHY ENG! A TOP STUDENT, DOTTY IS GOING INTO THE LEGAL PROFESSION...

WHERE'S JASON? HE'S NEXT!

HE LIKES AN ENTRANCE. THIS'LL BE GREAT.

JASON WRIGHT HAS A CAREER LINED UP IN FARM MACHINERY SALES... JASON...? JASON?





HOW COOL!

AW, HE'S A RICH  
SHOW-OFF WITH FANCY  
FOREIGN TOYS.

YOU NERDS ARE  
JUST JEALOUS!



POR FAVOR.  
WHO IS HE  
IMPRESSING?

WELL I THINK  
HIS ENTRANCE WAS  
SMASH COOL.

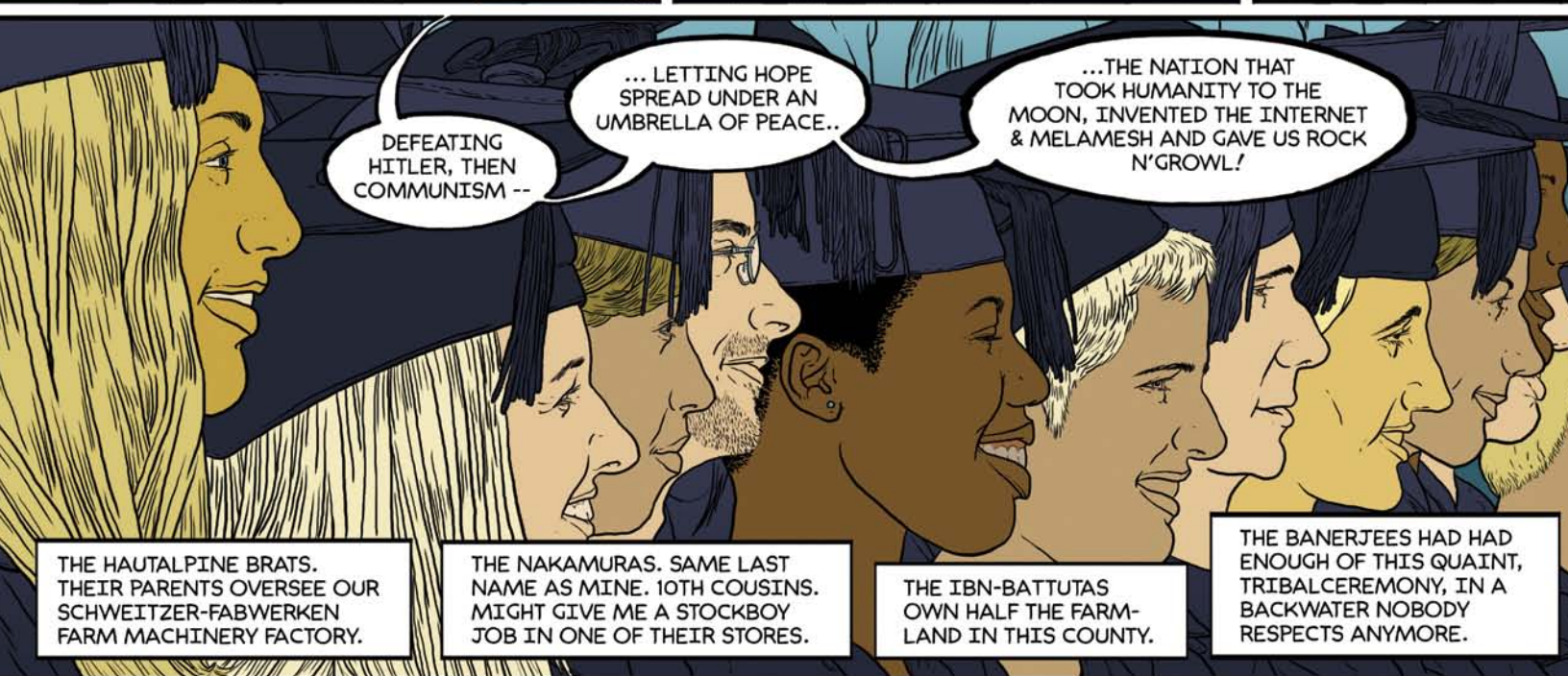
BICKERING - WE MISSED THE  
NAME OF OUR GRADUATION SPEAKER.



...THIS BRIGHT CLASS  
OF 2023 GIVES ME HOPE  
OUR NATION WILL SEE  
BETTER DAYS, LIKE  
WHEN THE PLANET  
TREMBLED IN AWE AT  
AMERICAN CREATIVITY  
& POWER --

SNORT!

BEHIND US, ONE OF THE  
DIGNITARIES LAUGHED  
AT THE NOTION OF  
"AMERICAN POWER.



DEFEATING  
HITLER, THEN  
COMMUNISM --

... LETTING HOPE  
SPREAD UNDER AN  
UMBRELLA OF PEACE..

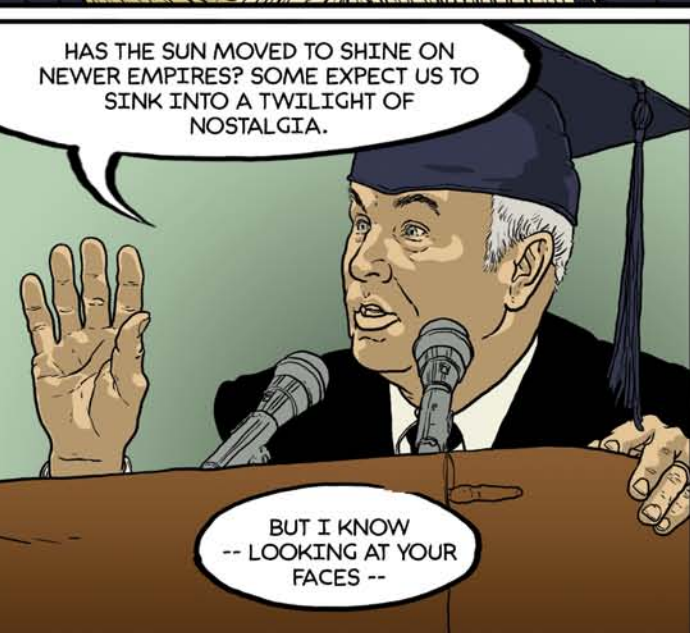
...THE NATION THAT  
TOOK HUMANITY TO THE  
MOON, INVENTED THE INTERNET  
& MELAMESH AND GAVE US ROCK  
N'GROWL!

THE HAUTALPINE BRATS.  
THEIR PARENTS OVERSEE OUR  
SCHWEITZER-FABWERKEN  
FARM MACHINERY FACTORY.

THE NAKAMURAS. SAME LAST  
NAME AS MINE. 10TH COUSINS.  
MIGHT GIVE ME A STOCKBOY  
JOB IN ONE OF THEIR STORES.

THE IBN-BATTUTAS  
OWN HALF THE FARM-  
LAND IN THIS COUNTY.

THE BANERJEEES HAD HAD  
ENOUGH OF THIS QUAINIT,  
TRIBALCEREMONY, IN A  
BACKWATER NOBODY  
RESPECTS ANYMORE.



HAS THE SUN MOVED TO SHINE ON  
NEWER EMPIRES? SOME EXPECT US TO  
SINK INTO A TWILIGHT OF  
NOSTALGIA.

BUT I KNOW  
-- LOOKING AT YOUR  
FACES --



-- THAT OUR  
BEST DAYS LIE  
AHEAD --





-- WHEN THE  
WORLD WILL LOOK UP  
TO AMERICA  
AGAIN--

AS WE TURN  
OUR GAZE TO A  
BRIGHT FUTURE.

IT SEEMED AN UNLIKELY HOPE.



STILL, I RECALL THAT MOMENT AS  
THE BEGINNING OF MY QUEST...



...JUST BEFORE OUR  
SMALL-TOWN LIFE CHANGED.

OW!  
WHAT WAS  
THAT?

IS IT  
HAIL?



Pok

I'M  
BLEEDING!

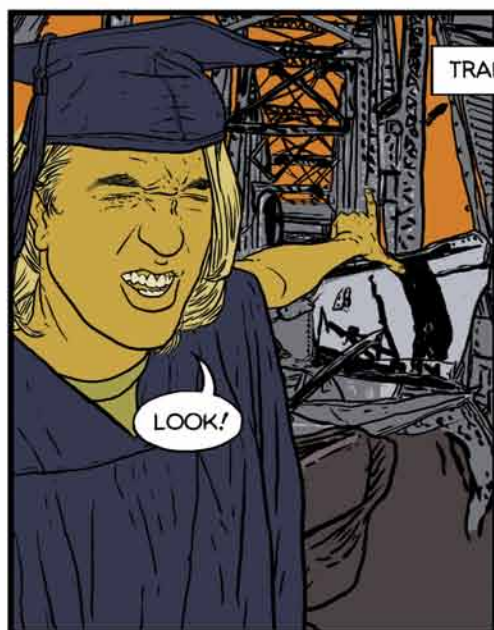
WHAT  
THE -- ?



THESE LOOK  
LIKE THE TYPES  
OF RIVETS  
ON --

THE  
BRIDGE! IT'S  
COLLAPSING!





TRAPPED...

THAT  
SECTION'S  
GONNA  
COLLAPSE.

EMERGENCY CREWS  
SHOULD BE HERE IN  
15 MINUTES...

...COULD WE  
CUT THEM FREE..?



JASON,  
GIVE ME THE  
JETPACK!

WHAT? NO.  
WHY DO --

I NEED  
IT NOW!

BUT YOU  
CAN'T FLY.



IT'S  
NOT FOR  
FLYING.



NO TIME TO WAIT  
FOR EMERGENCY  
CREWS OR SEND  
FOR A TORCH.



BUT IF I COULD IMPROVISE  
A CUTTING TORCH...

HANG  
ON,  
KIDS!

... WITHOUT BLOWING US  
ALL UP...



NO ONE WAS MORE  
AMAZED THAN ME,

...THAT IT WORKED...

...AND MADE ME A HERO...



A PROJECT FILLED MY LIFE,  
FOR THE NEXT FEW MONTHS...

...YET, CURIOSITY BURNED,  
LIKE MOLTEN METAL.

WHY DID THE  
BRIDGE COLLAPSE?  
THAT STILL BUGS  
YOU, DANNY?

MY QUESTION IS  
MORE GENERAL THAN  
THAT, BILL. HOW DID  
WE COME TO THIS?

BILL NOLAN WAS OUR  
PROJECT LEADER...

HOW DID  
AMERICA GO FROM  
THE WORLD'S TOP  
INDUSTRIAL  
POWER...

...TO A 2ND CLASS  
NATION THAT LIVES  
BY EXPORTING FOOD,  
COMMODITIES AND  
SERVICES?

...AND A BRILLIANT SMITH.

WHAT HAPPENED  
TO THE AMERICAN  
GENIUS FOR MAKING  
STUFF?

YEAH.  
THAT'S IT.

A QUESTION  
LIKE THAT CAN BE  
AN ITCH...

...I SEE IT'S GOT YOU PRE-  
OCCUPIED, DANNY. WE CAN'T  
HAVE YOU DISTRACTED  
TOMORROW MORNING!

...A CRAFT THE CHAEBOLS AND  
EUROFABRIQUES COULDN'T MASS  
PRODUCE.

BUT THE TEMPLATES WERE FINISHED.  
SHIPPED TO 50 SITES ACROSS THE  
STATE. I HAD NOTHING TO DO.

I'LL BE FINE.  
BUT IT DOES BUG  
ME. WHAT HAPPENED  
TO AMERICA?

DO YOU WANT  
MORE THAN PAT  
ANSWERS? THE STANDARD  
FINGER-POINTING?

FEW SPECIALTY-SMITHS WERE BETTER  
AT CRAFTING TENSEGRITY TEMPLATES...

WELL... SOME WILL TELL  
YOU NATIONS ARE LIKE PEOPLE.  
THEY PASS THROUGH PHASES.  
EAGER YOUTH... VIGOROUS  
ADULTHOOD... THEN SMUG-  
NESS... DECADENCE...  
DECLINE...



I HELPED HIM ADJUST THE CRYSTALLINE STRUCTURE, LAYER BY LAYER, WHILE LISTENING.

BUT THAT'S MYSTICAL NONSENSE. SOME NATIONS STAYED VIGOROUS FOR CENTURIES. OTHERS WERE BORN OLD.

AMERICA NEVER GREW SENILE! HER VIRTUES AND HER FAULTS WERE ALWAYS THOSE OF **ADOLESCENCE**. CONTRADICTIONS LIKE OUR QUICK ENTHUSIASM AND EASY BOREDOM. OUR SUDDEN TEMPERERS... AND GENEROUS READINESS TO FORGIVE. OUR EAGER CURIOSITY... AND SHORT ATTENTION SPANS.

I COULD GO ON BUT THE POINT IS -- WE DIDN'T DECLINE BECAUSE OUR TIME WAS UP.



NO, WE'RE THE WORLD'S TEENAGERS, DANIEL. ALWAYS WILL BE. IT WAS OUR GLORY... AND DOWNFALL...

...AND MAYBE KEY TO OUR FUTURE.



...BUT GO ASK AROUND. I BET YOU'LL GET A DIFFERENT ANSWER...

... EACH PERSON WILL TELL YOU A UNIQUE THEORY ABOUT WHO DESERVES THE BLAME.

HOW WE LOST OUR KNACK AT MAKING THINGS.



BILL INSISTED I TAKE THE AFTERNOON OFF. OUR TEMPLATES WERE FINISHED AND SENT OFF TO THE OTHER SMITHIES. TOMORROW WOULD BE BUSY...

SO I DECIDED TO GO ASK AROUND... STARTING WITH DR. WRIGHT. HE WAS A PROFESSOR, BEFORE QUITTING TO GET RICH IN FARM EQUIPMENT SALES.

JASON USED TO SNUB ME AT SCHOOL. BUT THE BRIDGE DISASTER MADE ME A 'HERO'... AND HE WAS PROUD THAT HIS MACHINE HELPED.

SO HE WAVED ME THROUGH TO HIS FATHER'S OFFICE.

I DIDN'T HAVE TO WAIT LONG.

YOU'LL LOVE HOW THE SEEDER REMOVES GENETIC HYBRIDS IN REAL TIME!

SIT DANIEL. WE'RE BUSY, FIGURING HOW TO MAKE OUR DELIVERIES WITH THE BRIDGE DOWN. AND THEY'LL BE YEARS CHOOSING A REPLACEMENT...

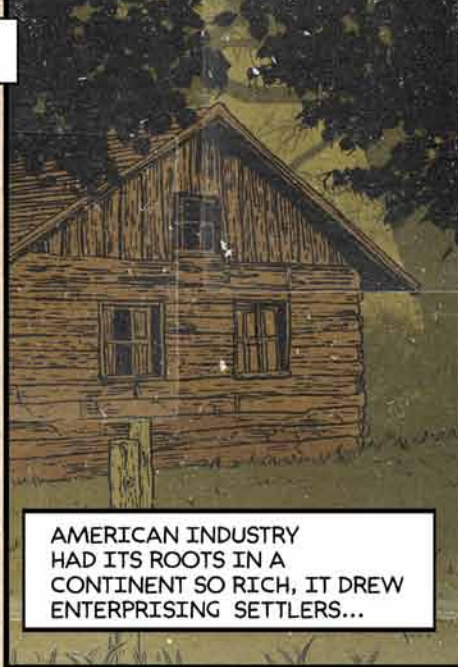
...BUT YOU SHOWED REAL LEADERSHIP DURING THE CRISIS. SO HOW CAN I HELP YOU?

HE LISTENED TO MY QUESTION, HIS FACE GROWING INCREASINGLY TAUT UNTIL...



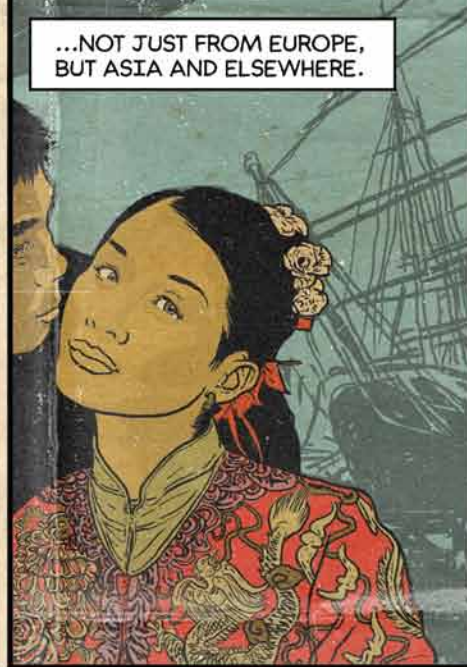
I SOON REALIZED, HE WASN'T MAD AT ME.

DAMN SCHOOLS LEFT YOU IGNORANT! BUT AT LEAST YOU'RE CURIOUS.

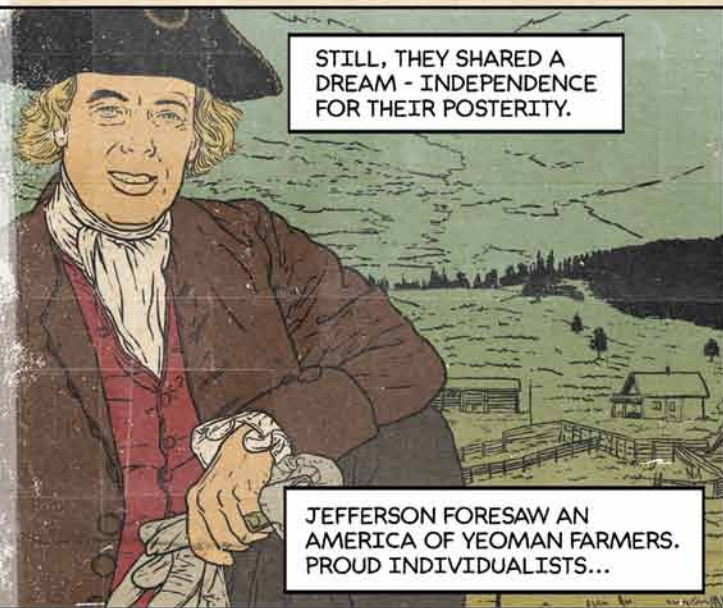


AMERICAN INDUSTRY HAD ITS ROOTS IN A CONTINENT SO RICH, IT DREW ENTERPRISING SETTLERS...

...NOT JUST FROM EUROPE, BUT ASIA AND ELSEWHERE.



SOME CAME INVOLUNTARILY.



STILL, THEY SHARED A DREAM - INDEPENDENCE FOR THEIR POSTERITY.

JEFFERSON FORESAW AN AMERICA OF YEOMAN FARMERS. PROUD INDIVIDUALISTS...



...SELF-SUFFICIENT, TRADING WITH NEIGHBORS, ALL MEN SERVING IN THE MILITIA. WOMEN WERE BONE-SETTERS, MIDWIVES.



OTHERS HAD GRANDER PLANS FOR AMERICAN INDUSTRY & COMMERCE. FIRST USING CANALS AND WATER POWER; THEN RAILS AND STEAM...

AMERICA'S EARLY POLITICAL BRAWLS WERE ABOUT TARIFFS/ TO KEEP OUT FOREIGN MANUFACTURES AND HELP OUR FLEDGLING INDUSTRIES?



OR LET JEFFERSON'S BELOVED FARMERS TRADE COTTON & WHEAT FOR CHEAP EUROPEAN GOODS?

IT ALMOST RIPPED US APART, SEVERAL TIMES.





PEOPLE FORGET,  
WE WERE ONCE THE  
PROTECTIONIST, DEVELOPING  
NATION. THE PATENT  
THIEVES.

TEXTILES CAME FIRST.  
THE POWERED LOOMS  
THAT THE "LUDDITES"  
BURNED, IN BRITAIN,  
SOON DOTTED  
NEW ENGLAND...

...THEN SHIFTED TO ELECTRIFIED  
CITIES, WHERE IMMIGRANT LABOR...



... FOR THE FIRST TIME MADE  
CLOTHING AFFORDABLE FOR ALL!



THERE WERE  
A FEW THINGS  
THAT OL' KARL  
MARX GOT  
RIGHT, YOU  
KNOW.

LIKE THAT CAPITALISTS FOLLOW  
CHEAP LABOR. THEY MOVED THEIR  
LOOMS TO THE AMERICAN SOUTH.

WHEN **THOSE** FACTORIES UNIONIZED,  
THE MILLS MOVED OVERSEAS. OTHER  
INDUSTRIES FOLLOWED...

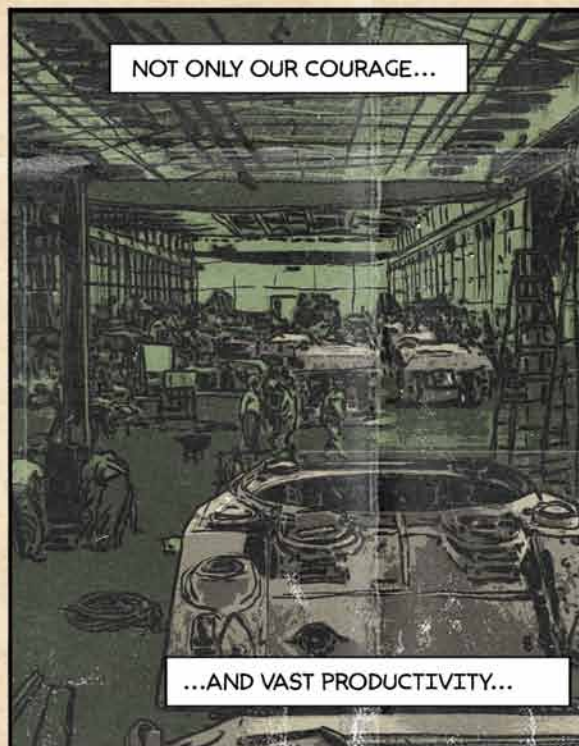


AREN'T YOU SKIPPING  
A LOT? THE CIVIL WAR  
MADE US AN INDUSTRIAL  
POWER. THEN CAME THE...  
GREAT DEPRESSION, AND  
WORLD WAR II --

A HISTORY BUFF!  
SURE, DANNY. BUT  
IMPORTANT DETAILS  
ARE ALWAYS LEFT  
OUT.



OUR AXIS FOES  
UNDERESTIMATED  
US IN MANY WAYS.



NOT ONLY OUR COURAGE...

...AND VAST PRODUCTIVITY...



...BUT ALSO A SECRET  
WEAPON.



EVERY UNIT HAD TINKERERS, BOYS WHO GREW UP MESSING WITH CARS, OR RADIOS... THE "HACKERS" OF THEIR DAY.



ANY U.S. INFANTRY COMPANY COULD BE "MECHANIZED" OVERNIGHT. JUST DELIVER THE MACHINES! THESE GUYS COULD USE THEM. **MAINTAIN THEM.**

HUNDREDS OF THOUSANDS OF YOUNG MEN -- THEIR PASSIONATE PASTIMES HELPED BRING VICTORY... THEN BUILT POSTWAR PROSPERITY.



YEARS LATER, SOMETHING SIMILAR HAPPENED -- WHEN COMPUTER GEEKS TURNED THEIR HOBBY INTO AN INDUSTRY.

COMPARE TO MY GENERATION -- MILLIONS OF MAN-HOURS BECOMING "EXPERT"... VIDEO GAMERS!

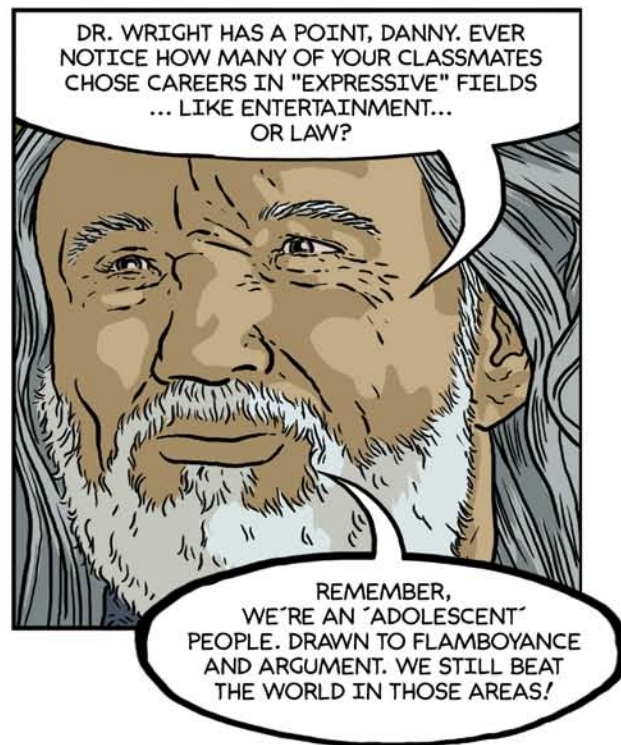


GETTING AGILE THUMBS. BUT NO SKILLS. NO USEFUL ABILITIES.



THAT IS, UNLESS ZOMBIES ATTACK.







TAKE PROFESSIONALIZATION - THE ONLY TREND SPANNING THE WHOLE 20TH CENTURY. ALMOST EVERYTHING YOU DID FOR YOUR FAMILY, IN 1900...

...COPS PROFESSIONALIZED. MEDICINE BECAME A SCIENCE. MILITARY OFFICERS GOT MASTERS DEGREES & PHDS. EVERYTHING COMPUTERIZED.

TILL A COUNTER TREND TOOK SHAPE. ONE THAT'S ESPECIALLY AMERICAN.

BUT DR. WRIGHT LEFT OUT OTHER FACTORS...

... WAS DONE BY SPECIALISTS, IN 1990. GROWING & TRANSPORTING FOOD, TENDING THE SICK, PAYING YOUR TAXES...

A GOOD TREND, OVERALL...THOUGH IT MADE US MORE RIGID. LESS FLEXIBLE.



BUT GO ASK OTHERS, DANNY. YOUR QUEST IS IMPORTANT!

SO I PEDALED OVER TO ASK FRANCOISE HAUTALPINE WHAT SHE THOUGHT...

THE COMPANY ENGINEERS WERE BUSY, PREPARING THEIR BID FOR THE REPLACEMENT BRIDGE...

ANYWAY, THE TEMPLATES HAVE ALREADY GONE OUT TO OUR PARTNERS. I'VE GOT THE REST UNDER CONTROL. GO!

... ABOUT WHY THE UNITED STATES LOST ITS INDUSTRIAL MIGHT.

... BUT I WAS THE 'BIG HERO'. SO FRANCOISE SEEMED PLEASED...

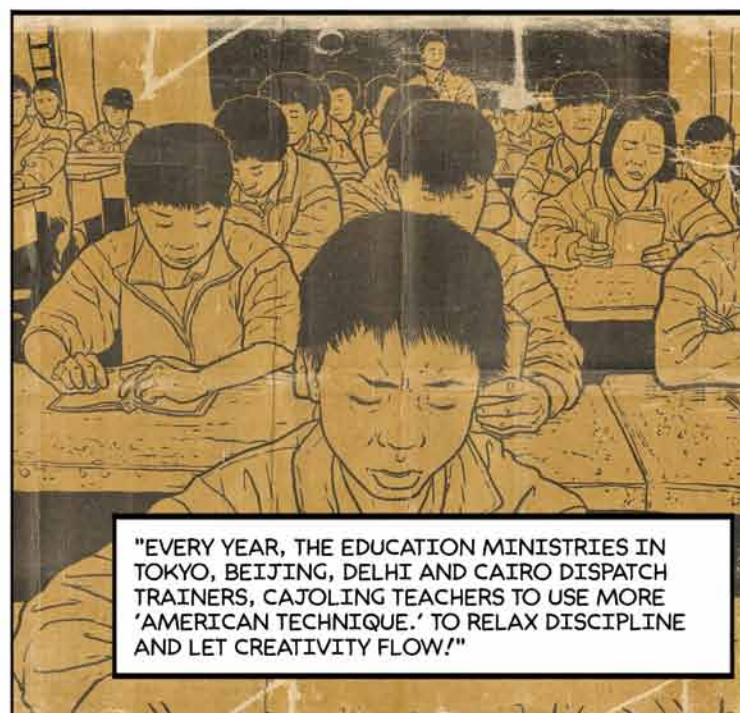
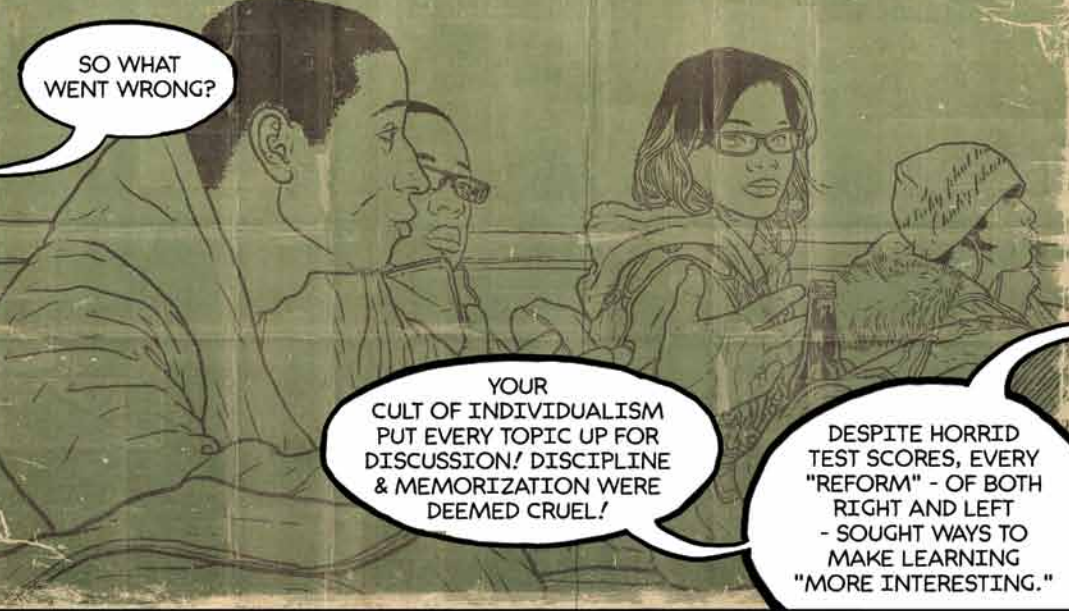
... TO OFFER ME HER WISDOM.

IT IS THE FAULT OF THE AMERICAN EDUCATION SYSTEM!

YOU PIONEERED FREE EDUCATION FOR THE MASSES. THEN VAST NUMBERS OF LAVISH UNIVERSITIES.

AT FIRST, THIS PRODIGIOUSLY INCREASED PRODUCTIVITY! AND U.S. UNIVERSITIES ARE STILL MAGNIFICENT... THOUGH FILLED WITH FOREIGN STUDENTS.









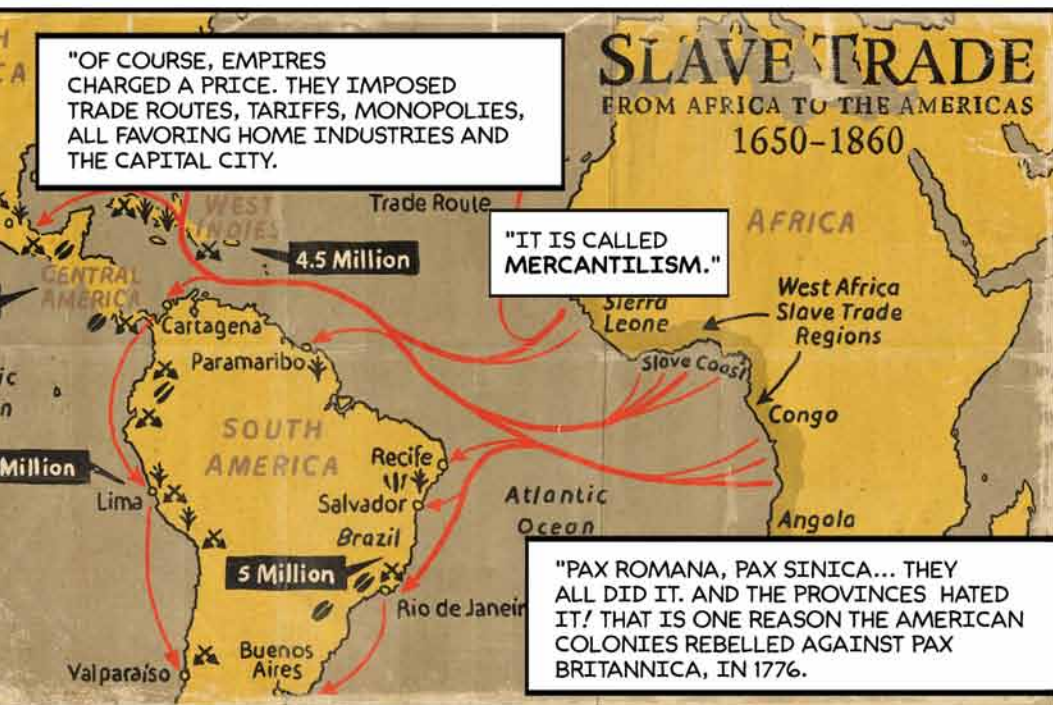
...IF YOUR LEADERS  
HAD NOT LET YOU  
DOWN.

WHAT DO  
YOU MEAN?

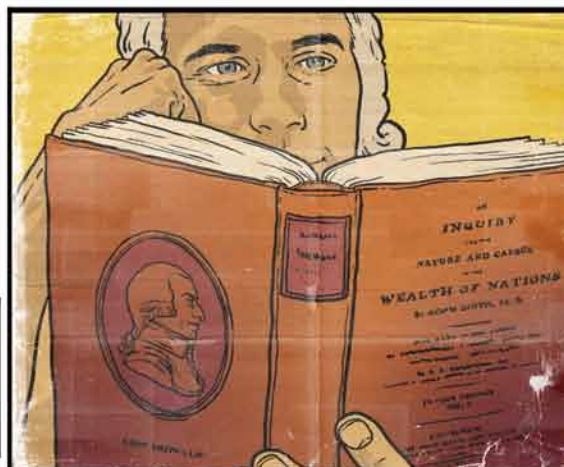


"THE WORLD RUNS ON **TRADE**,  
DANIEL. EVEN CAVEMEN SWAPPED  
MOUNTAIN STONES FOR SEASHELLS,  
ACROSS HUNDREDS OF KILOMETERS."

"LATER, WHENEVER EMPIRES  
GREW STRONG ENOUGH, THEY WOULD  
IMPOSE A **"PAX"** OR IMPERIAL PEACE.  
ORDERLY TRADE BLOSSOMED."

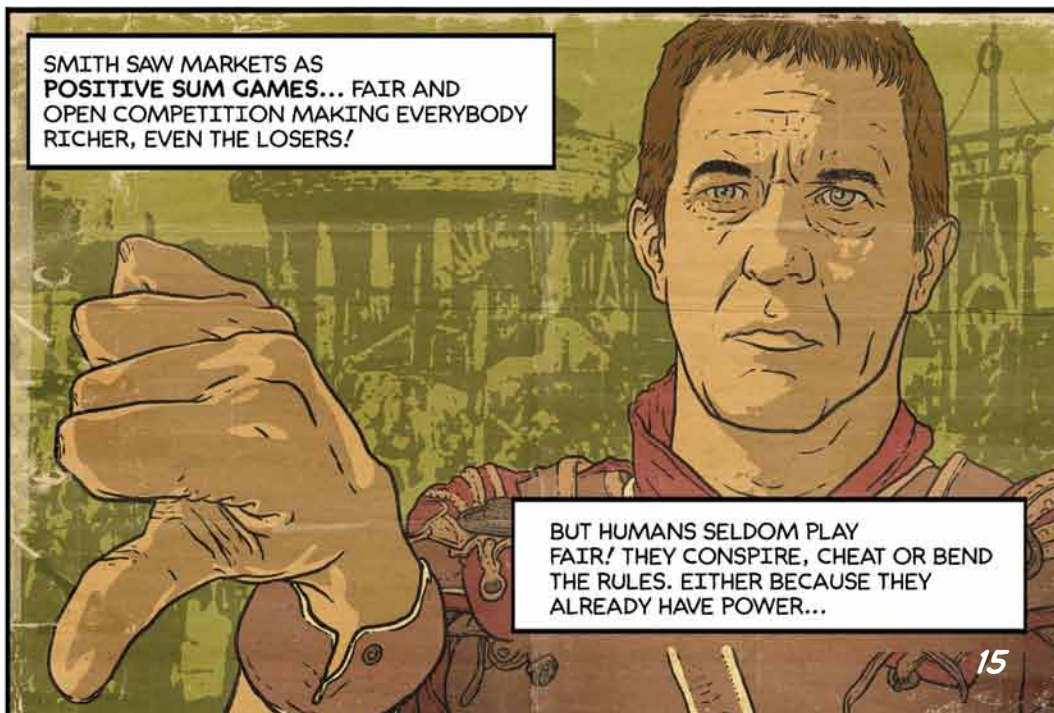


"THAT SAME YEAR, ADAM SMITH MADE HIS GREAT ARGUMENT AGAINST MERCANTILISM. AGAINST OLIGARCHY AND 'ARRANGED' MARKETS. PROMOTING OPEN COMPETITION, MASS EDUCATION, SOCIAL MOBILITY, FREE TRADE, TRANSPARENT MARKETS."



SMITH WAS BRILLIANT. HIS IDEAS  
EVEN WORKED, FOR A WHILE, IN  
PLACES LIKE AMERICA.

TOO BAD THEY  
DON'T REALLY FIT  
HUMAN NATURE."



SMITH SAW MARKETS AS  
**POSITIVE SUM GAMES...** FAIR AND  
OPEN COMPETITION MAKING EVERYBODY  
RICHER, EVEN THE LOSERS!

BUT HUMANS SELDOM PLAY  
FAIR! THEY CONSPIRE, CHEAT OR BEND  
THE RULES. EITHER BECAUSE THEY  
ALREADY HAVE POWER...



...OR BECAUSE THEY ARE DESPERATE.

AMID DEVASTATION, AFTER THE SECOND WORLD WAR, MY PEOPLE VOWED TO SUCCEED AT TRADE, WHERE WE HAD FAILED AT EMPIRE. STRUGGLING, LEARNING, WORKING HARD, SELLING ANYTHING OUR HANDS COULD MAKE..."

...WE INVENTED THE STATE-MANAGED, EXPORT-DRIVEN DEVELOPMENT MODEL. A PATTERN LATER USED BY KOREA, TAIWAN, SINGAPORE, HONG KONG... ULTIMATELY CHINA AND INDIA...

...EMPOWERING THEM TO LEAVE BEHIND CENTURIES OF COLONIAL HUMILIATION AND REPRESSION, SEIZING A PLACE IN THE SUN!

UM...THAT EXPLAINS YOUR RISE...BUT WHY OUR FALL?

SIMPLE. ADAM SMITH WAS WRONG. IT IS A ZERO SUM GAME. THERE WILL BE WINNERS & SOMEONE MUST LOSE.

IS IT OUR FAULT THAT AMERICA'S POST WAR LEADERS WERE TOO STUPID...

...TO SET UP A PROPER MERCANTILIST PAX?

INSTEAD, THEY LET SPOILED AMERICANS GO ON A 70 YEAR SHOPPING SPREE, BUYING ANYTHING THAT HARD-WORKING FOREIGN LABOR COULD MAKE CHEAP."

VAL\*MART!

TRADE IMBALANCES? WHO CARED!

IN THE LATE 1940S, AMERICA WAS A BEHEMOTH. THE ALL-POWERFUL WORLD PAX! YET UNABLE TO SET UP THE SAME SYSTEM AS ROME OR IMPERIAL CHINA OR THE BRITISH EMPIRE, OR A HUNDRED OTHERS...

INSTEAD OF ORGANIZING YOUR COMPANIES IN THE NATIONAL INTEREST, THEY WERE ALLOWED TO CUT EACH OTHERS' THROATS, GIVE AWAY PATENTS FOR FICTITIOUS 'MARKET SHARE,' EXPORT JOBS...

...HOLLOWING OUT YOUR SKILL BASE AND INDUSTRY.

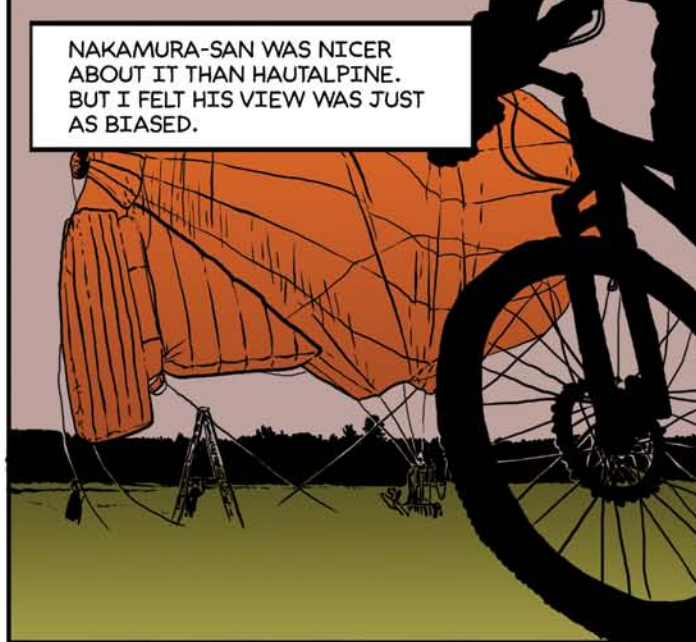




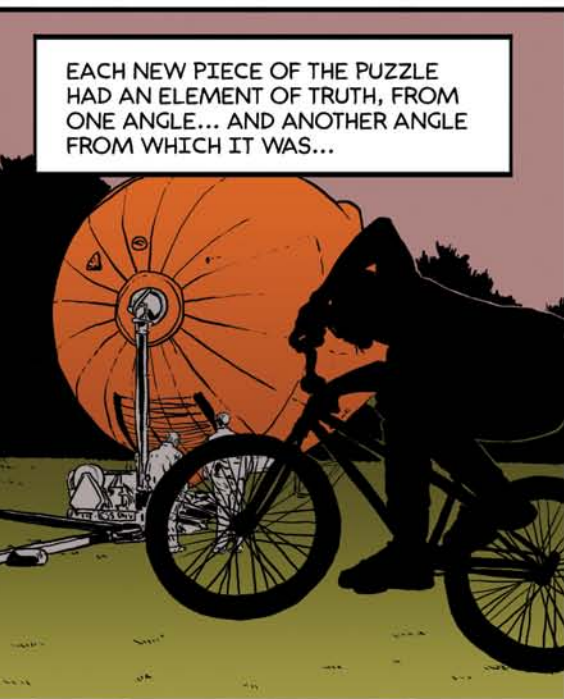
PLEASE UNDERSTAND, DANIEL, I LOVE AMERICA. IT PAINS ME TO SAY SUCH THINGS. SOON, PERHAPS, WE WILL GUIDE YOU TO BETTER WAYS...



...AND BETTER DAYS.



NAKAMURA-SAN WAS NICER ABOUT IT THAN HAUTALPINE. BUT I FELT HIS VIEW WAS JUST AS BIASED.



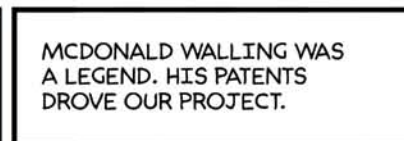
EACH NEW PIECE OF THE PUZZLE HAD AN ELEMENT OF TRUTH, FROM ONE ANGLE... AND ANOTHER ANGLE FROM WHICH IT WAS...



... DEAD WRONG! WHAT DID NAKAMURA SAY?

IF WE HAD **SMART** LEADERS, WE'D HAVE USED OUR MIGHT TO IMPOSE COMMERCIAL EMPIRE, LIKE EVERY OTHER... PAX.

YOU'RE BUSY, BILL. LET ME ANSWER DANNY.



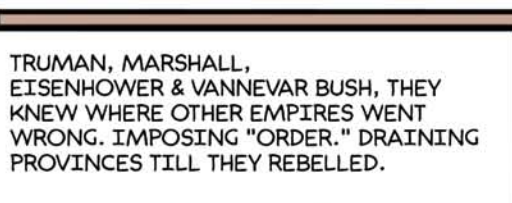
MCDONALD WALLING WAS A LEGEND. HIS PATENTS DROVE OUR PROJECT.



IT'S TRUE, SMART LEADERS WOULD'VE TURNED POST-WAR POWER INTO A MERCANTILE EMPIRE, LIKE HAN CHINA, ROME, OR THE BRITISH RAJ. WE DIDN'T HAVE SMART LEADERS.



WE HAD **GENIUSES**.



TRUMAN, MARSHALL, EISENHOWER & VANNEVAR BUSH, THEY KNEW WHERE OTHER EMPIRES WENT WRONG. IMPOSING "ORDER." DRAINING PROVINCES TILL THEY REBELLED.



WE TRIED THAT, A FEW TIMES, WITH POOR RESULTS.


THOSE FELLOWS ASKED A NEW QUESTION UNLIKE ANY OTHER "PAX".

WHAT KIND OF A DIFFERENT WORLD CAN WE MAKE?



INSTEAD OF AN AMERICAN EMPIRE... CAN WE CREATE A WORLD THAT'S BETTER FOR EVERYONE? FOREVER?





YES, EXPORT-PULL DEVELOPMENT  
TURNED 3 BILLION PEASANTS  
INTO WORKERS WITH CLEAN  
HOMES & KIDS IN SCHOOL.

SURE, FRET OVER LABOR PRACTICES, CORRUPTION,  
POLLUTION. BUT WHEN THE WORLD MAJORITY IS  
MIDDLE CLASS, THEY CAN DEMAND LABOR AND  
ECO-LAWS. PEASANTS CAN'T.

NAKAMURA'S RIGHT: THE U.S. CONSUMER  
DROVE THIS, BUYING \$10 TRILLION OF  
UNNEEDED CRAP. MORE TRANSFERRED  
WEALTH THAN ALL FORMS OF "AID" COMBINED.

BUT HE'S WRONG TO SAY  
IT HAPPENED **STUPIDLY**.

TRUMAN,  
EISENHOWER...  
EXPECTED ALL  
THIS?

WELL, BUSH WAS THE VISIONARY. HE  
EVEN FORESAW THE INTERNET! BUT IT  
WAS MARSHALL'S BIG PLAN TO BUILD  
PEACE THROUGH PROSPERITY.

AMERICA CHOSE TO SACRIFICE  
DOMINANCE & SAVE THE WORLD -  
WITH A **SPENDING SPREE**? WON'T  
MOST PEOPLE FIND THAT...  
FAR-FETCHED?

BUT RECALL HOW  
SMART THOSE GUYS  
WERE, IN OTHER  
WAYS.

EVEN SO, DID  
**WE** HAVE TO DECLINE?  
AKIO SAYS THERE ARE ONLY  
ZERO-SUM GAMES. SO,  
HELPING OTHERS THRIVE  
MADE US LOSERS!

SO HE MUST BE  
**WRONG**. IN A WORLD  
WHERE "LOSERS" CAN  
NUKE THE WORLD, THOSE  
OLD ZERO-SUM GAMES  
DOOM US ALL!

BUT ADAM SMITH'S  
WIN-WIN SHOULD  
HARNESS COMPETITION  
AND COOPERATION FOR  
THE GOOD OF ALL.

FOR DECADES WE FINANCED  
WORLD DEVELOPMENT AND  
**STAYED AHEAD... BY**  
INNOVATING! CREATE  
**NEW PATENTS** FASTER THAN  
OTHERS CAN STEAL 'EM!

BUT WE WENT WRONG IN THE 21ST.  
OUR INNOVATION FELL BEHIND  
SPENDING. DECLINE SET IN.

HISTORIAN ARNOLD TOYNBEE  
STUDIED THE RISE AND FALL OF  
NATIONS. HE FOUND THEY MOST  
OFTEN COLLAPSE WHEN THEY STOP  
SUPPORTING A CREATIVE MINORITY.  
RESILIENT & READY FOR NEW  
CHALLENGES.

WE FAILED WHEN AGING BOOMERS  
GREW MORE OBSESSED WITH BLAME  
THAN SOLUTIONS. WHEN CURIOSITY  
& KNOWLEDGE & PRAGMATISM  
LOST THEIR SHINE. WHEN NEW,  
SHORTSIGHTED LEADERS PUSHED  
FEAR OF CHANGE AND CIVIL WAR.

JETS, SATELLITES,  
COMPUTERS, MEDICINE,  
THE WEB... NEW SCI-TECH  
SPURRED HALF OF 20TH  
CENTURY GDP, LETTING THE  
U.S. BUY FROM THE WORLD!





THE RIGHT DESPISED SCIENCE, THE LEFT, ENGINEERING. DOGMA REPLACED NEGOTIATION. GRAND AMBITIONS FADED. TOYNBEE KNEW THE OUTCOME.



BUT GET MORE OPINIONS. YOU'VE SCRATCHED THE SURFACE.

AREN'T I NEEDED FOR THE BIG PUSH?

OUR TEMPLATES ARE IN MINI-FOUNDRIES ACROSS THE STATE. THE EIFFEL-MATCH IS UNDERWAY. WE'LL NEED YOU IN THE MORNING, THOUGH!



MAYBE I WAS OBSESSED. BUT I HAD A FEW MORE PEOPLE TO ASK, BEFORE TOMORROW...

ANYWAY, THIS QUEST WAS BURNING OFF MY NERVOUS ENERGY.



I ACTED MORE LIKE A REPORTER NOW, WITH MY HEADS-UP DISPLAY.



PIALI BANERJEE OFFERED HER DIAGNOSIS...

MERCANTILISM IS LONG-TERM FOOLISH. GHANDI HATED IT.

NO, AMERICA MADE ANOTHER MISTAKE, TYPICAL OF EMPIRES... TOO MUCH MILITARY SPENDING.



CLICK FOR 80-YEAR MILITARY SPENDING STATS.

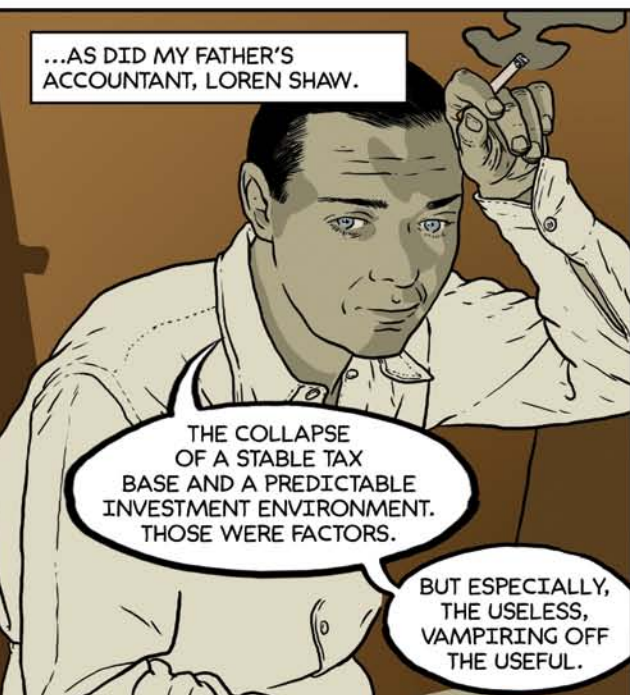
BANERJEE INC. BRIDGE PROPOSAL: DRAFT SUBMISSION IN 89 DAYS.

THE AMERICAN PAX WAS BENEFICIAL, IF OVERBEARING. YOURS WAS THE **LEAST-HATED IMPERIUM**. BUT WHAT DID IT GET YOU? WITH 4% OF WORLD POPULATION BUT HALF OF ALL MILITARY SPENDING? ASSIGNING YOUR BEST ENGINEERS TO DEVELOP THINGS YOU PRAYED NOBODY'D NEVER USE?



AND COSTLY ADVENTURES THAT MORTGAGED YOUR FUTURE?

THAT'S HOW ROME BANKRUPTED ITSELF.



...AS DID MY FATHER'S ACCOUNTANT, LOREN SHAW.

THE COLLAPSE OF A STABLE TAX BASE AND A PREDICTABLE INVESTMENT ENVIRONMENT. THOSE WERE FACTORS.

BUT ESPECIALLY, THE USELESS, VAMPIRING OFF THE USEFUL.



HUGE GOVERNMENT DEFICITS, ENTITLEMENTS, AND SPECIAL INTEREST TAX BREAKS MEANT POLITICIANS RELIED ON TAXING PRODUCTIVE BUSINESS, ESPECIALLY MANUFACTURERS.

THEN WALL STREET PREDATORS CLOSED IN, SIPHONING VALUE, CAPTURING REGULATORS, LEVERAGING ASSETS...

...I WAS ONE OF THEM.



BANKS WEREN'T RUN BY BANKERS, BUT MBA'S WITH MONEY-TWEAK SCHEMES. WE FINANCE-BOYS TOOK OVER BIG U.S. COMPANIES...

...WHILE IN JAPAN AND CHINA, ENGINEERS GOT TOP POSTS...

...GUYS WHO LIKED MAKING THINGS.

BETWEEN A SPENDTHRIFT GOVERNMENT, ENTITLEMENT CULTURE, AND A GREED-OCRACY, INDUSTRY STOOD NO CHANCE.

WE HAD A GOOSE THAT LAID GOLDEN EGGS. WE COOKED IT FOR DINNER, THEN WENT HUNGRY.

EVEN THE TOPIC-LINKS WERE DEPRESSING.

TOPIC-RELEVANT LINK: "AMERICA'S COLLAPSE BEGAN WHEN GOVERNMENT BECAME A TOOL OF PRIVATE OLIGARCHY, SOCIALIZING COSTS, PRIVATIZING SHORT-TERM REWARDS..."

SOME OTHERS HAD SIMPLER THEORIES

INFRASTRUCTURE! A NATION'S BONE & SINEW! SEE WHAT HAPPENS, WITHOUT UPKEEP?

BUT WE'VE GOT THE FOOTINGS CLEAR...

...I HOPE THINGS GO WELL HERE, TOMORROW.

BUT I HAD TO CONTINUE, IF TOMORROW'S WORK WAS TO MEAN ANYTHING AT ALL.

THE BULLARDS RAN OUR LOCAL SOLAR FARM.

SOLAR THERMAL CONCENTRATORS MADE BY FABRIQUE ZAIRE.

AVERY AND JULIA BULLARD

FACTORIES MADE THE U.S. STRONG. BUT MANUFACTURING IS DIRTY. UNIONS ARE EXPENSIVE. SO WE SHIPPED ALL THAT OVERSEAS, EXPECTING TO REPLACE 'EM WITH CLEAN INDUSTRIES.

HEALTH, INFOTECH, PHARMA, FINANCE & SUSTAINABLES! BUT SOFTWARE & DERIVATIVE TRADING DON'T EMPLOY MILLIONS. AND THEY OUTSOURCE, TOO!

AND WE MISSED THE SUSTAINABLES WAVE.

IF WE HAD REALLY INVESTED IN R&D...

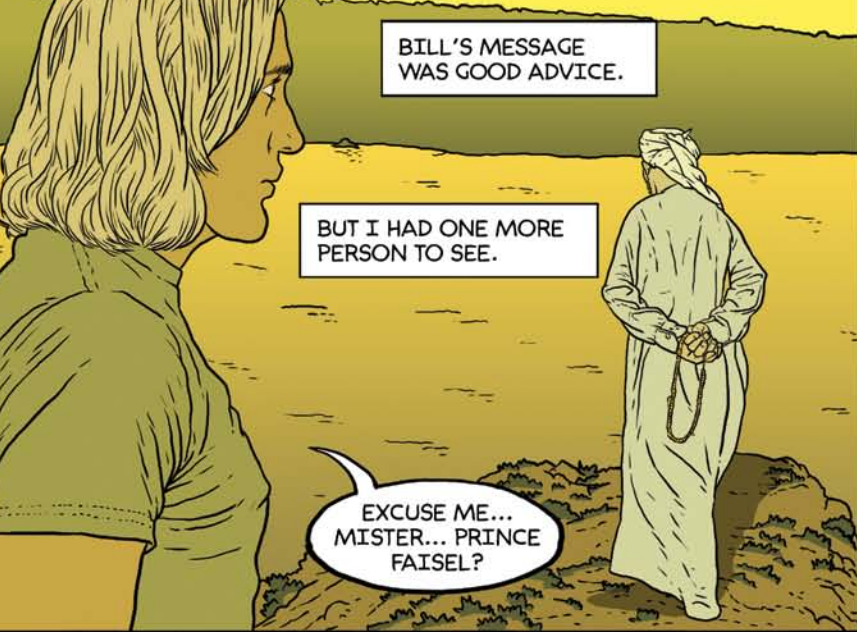
IBN BATTUTA  
SUNLIGHT  
SOLAR  
energy inc

BUT MAYBE IT'S NOT TOO LATE, DANNY?

WE'LL BE THERE, AT DAWN, TO HELP.

MESSAGE FROM BILL: GET SLEEP! BCNU EARLY!

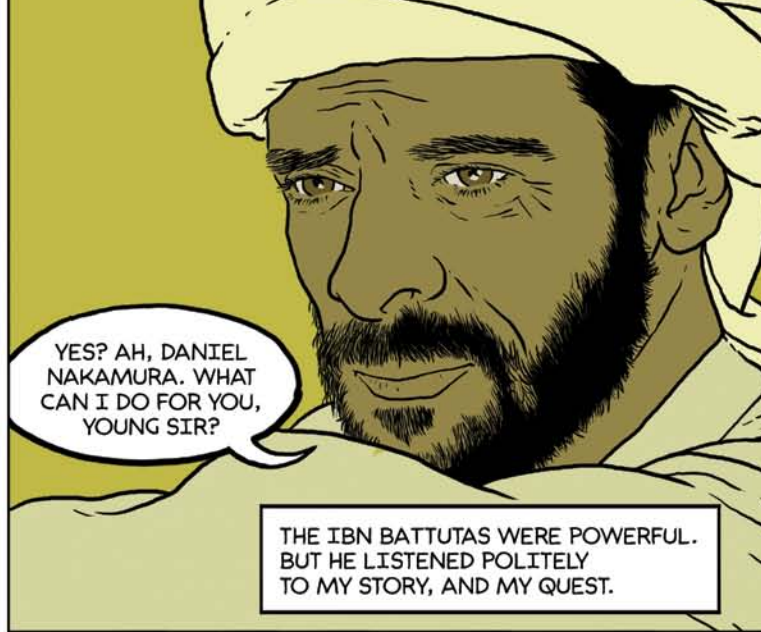




BILL'S MESSAGE WAS GOOD ADVICE.

BUT I HAD ONE MORE PERSON TO SEE.

EXCUSE ME... MISTER... PRINCE FAISEL?



YES? AH, DANIEL NAKAMURA. WHAT CAN I DO FOR YOU, YOUNG SIR?

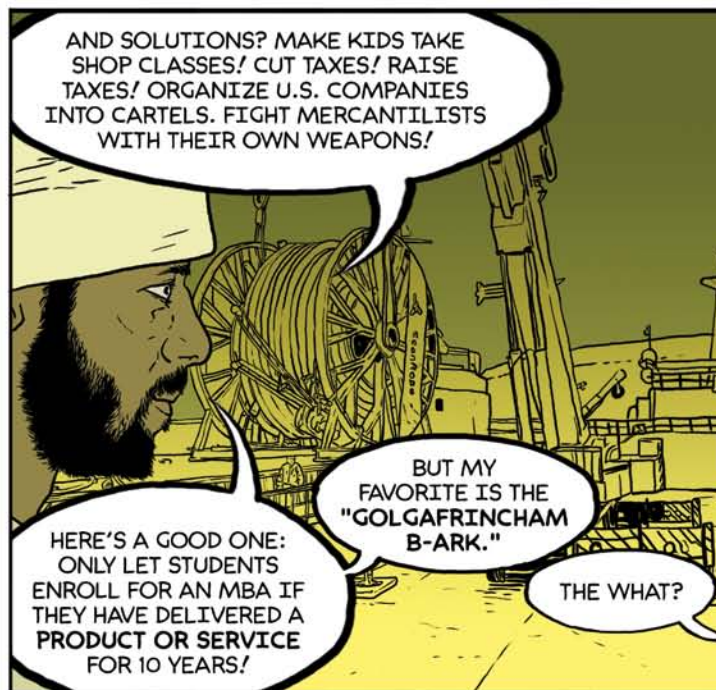
THE IBN BATTUTAS WERE POWERFUL. BUT HE LISTENED POLITELY TO MY STORY, AND MY QUEST.



HE TOOK A... LONGER VIEW.

GYRATING TAX LAWS... UNIONS... RESTRICTIONS ON ENERGY USE... MERCANTILISM... OLIGARCHY... THEFT OF INTELLECTUAL PROPERTY...

...I AM SURE YOU'VE HEARD ALL THE COMPLAINTS.



AND SOLUTIONS? MAKE KIDS TAKE SHOP CLASSES! CUT TAXES! RAISE TAXES! ORGANIZE U.S. COMPANIES INTO CARTELS. FIGHT MERCANTILISTS WITH THEIR OWN WEAPONS!

HERE'S A GOOD ONE: ONLY LET STUDENTS ENROLL FOR AN MBA IF THEY HAVE DELIVERED A PRODUCT OR SERVICE FOR 10 YEARS!

BUT MY FAVORITE IS THE "GOLGAFRINCHAM B-ARK."

THE WHAT?



FROM THE HITCH-HIKER'S GUIDE TO THE GALAXY. COME DANIEL. SCIENCE FICTION WAS YOUR CULTURE'S GREATEST GIFT TO THE WORLD! A NATION'S VIGOR IS MEASURED BY HOW MUCH IT READS. MINE ONLY BLOSSOMED, WHEN WE TOOK IT UP!

ANYWAY FORGET THE PAST! DON'T YOU HAVE A BIG DAY TOMORROW, SHAPING THE FUTURE??

OFF WITH YOU, NOW...



...SOME OF US WILL BE ROOTING FOR YOU.

HE WAS RIGHT. I NEEDED FOOD...

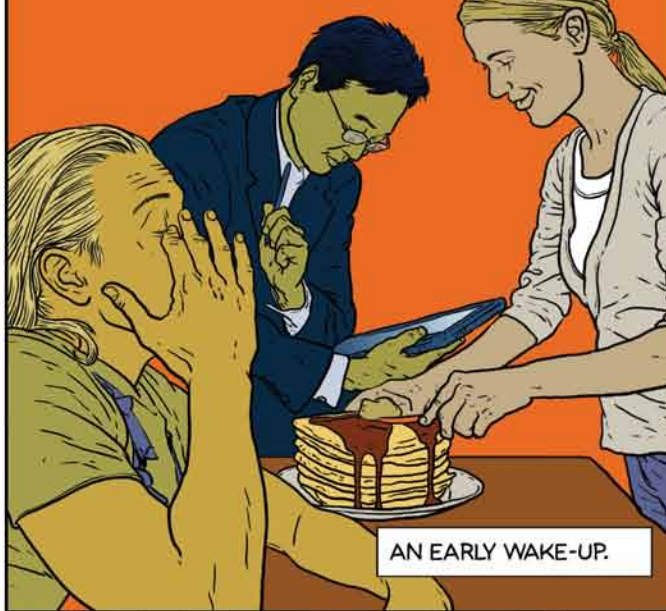


...AND SLEEP.



I SNORED WHILE  
GRAMPA WATCHED TV.

STAY TUNED FOR  
*EXECUTIVE SUITE*,  
STARRING WILLIAM  
HOLDEN, JUNE ALLYSON  
AND BARBARA  
STANWYCK...



AN EARLY WAKE-UP.



DAD DROVE ME IN OUR  
KIT-BUILT HOVERCAR.

THE NIGHT CREW HAD DONE  
THEIR WORK IN SECRET...

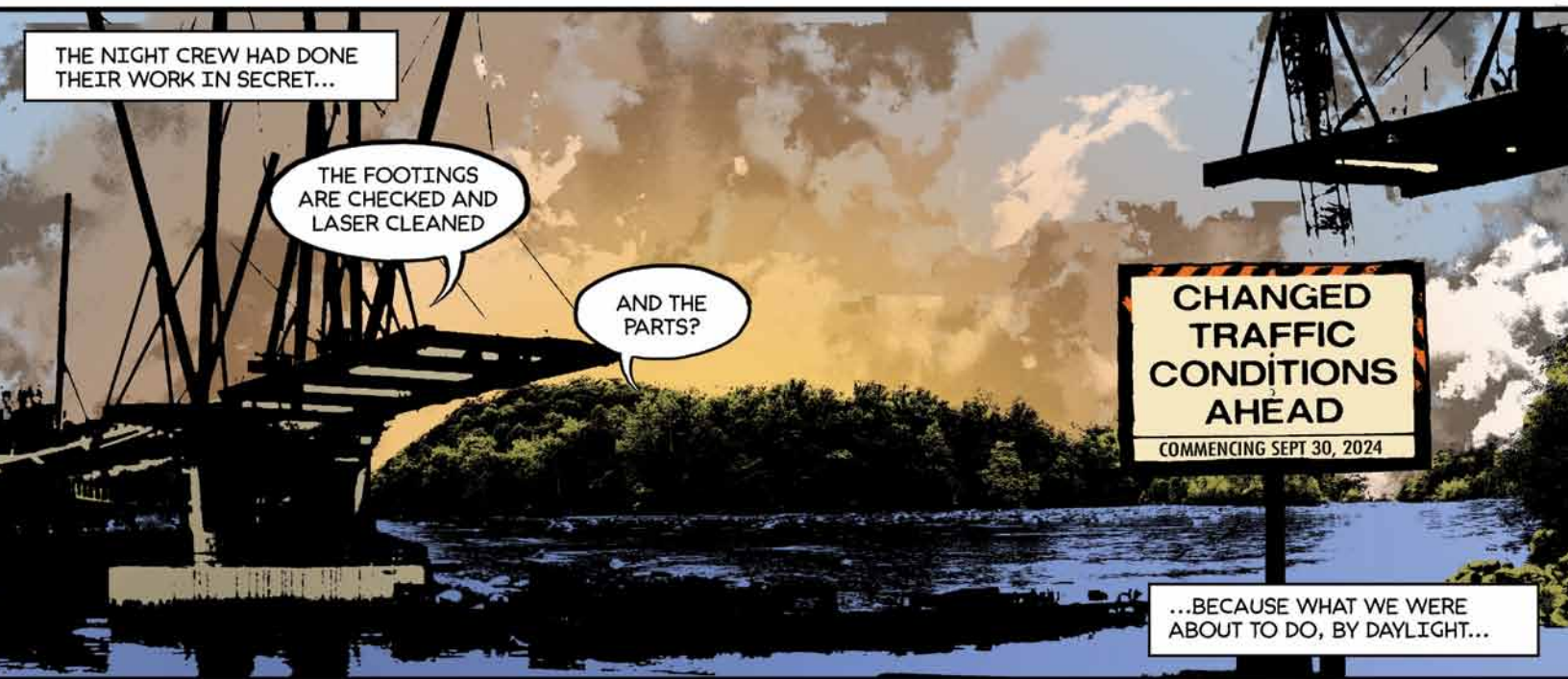
THE FOOTINGS  
ARE CHECKED AND  
LASER CLEANED

AND THE  
PARTS?

CHANGED  
TRAFFIC  
CONDITIONS  
AHEAD

COMMENCING SEPT 30, 2024

...BECAUSE WHAT WE WERE  
ABOUT TO DO, BY DAYLIGHT...



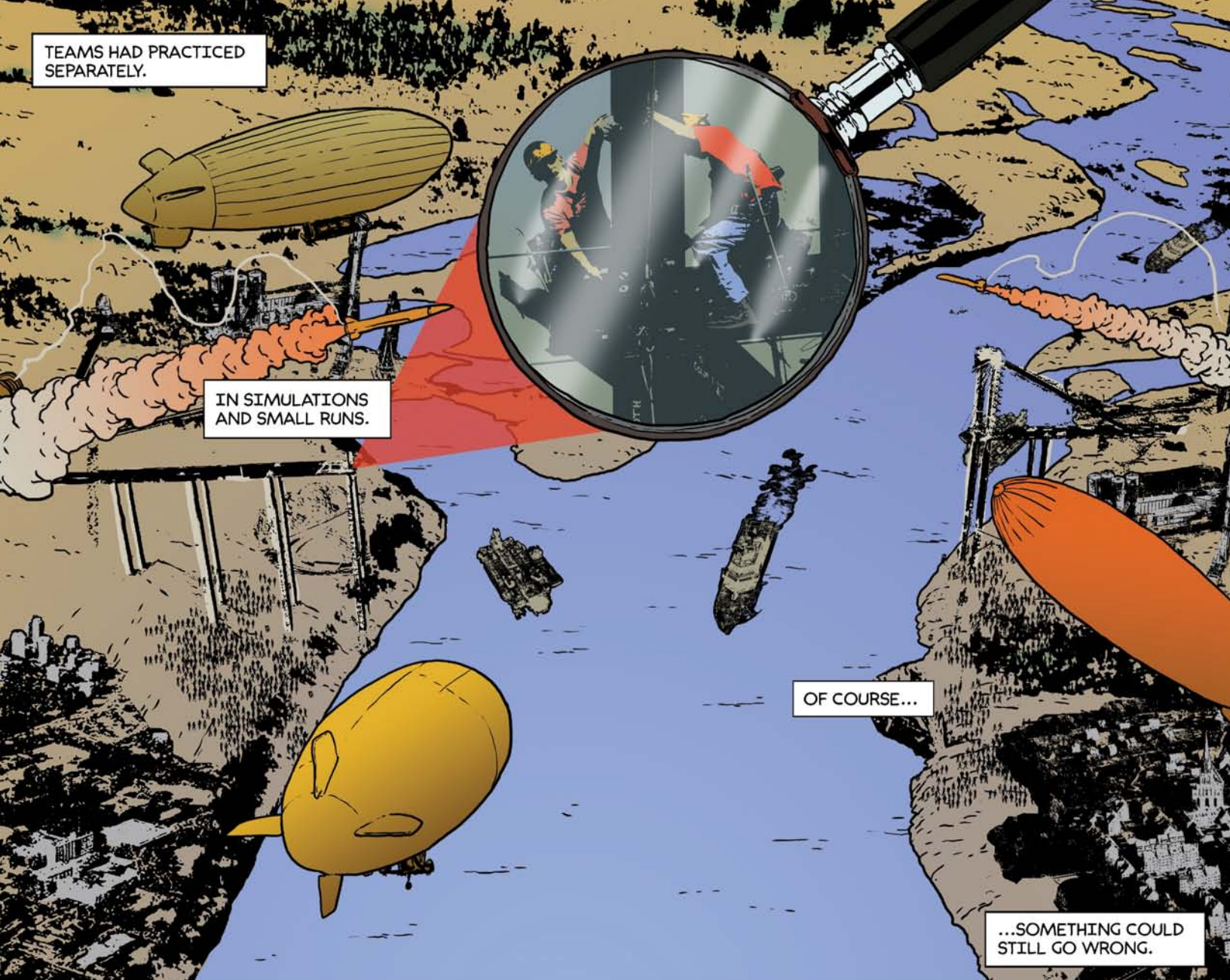
PARTS ARE  
CONVERGING ON  
SCHEDULE, BY  
LAND --

-- BY SEA --

-- AND AIR.








TEAMS HAD PRACTICED  
SEPARATELY.


IN SIMULATIONS  
AND SMALL RUNS.

OF COURSE...

...SOMETHING COULD  
STILL GO WRONG.



MONTHS OF PLANNING BY  
NETWORKED INDIVIDUALS, CLUBS,  
MANUFACTURERS, EVEN BANKERS...




...TO MAKE APPARENT  
CHAOS -- A BALLET!

IT TOOK NEW METHODS OF DESIGN,  
DISTRIBUTED-FABRICATION, WEBBED-  
INTEGRATION, AGILE FINANCE....

...AND AGENCIES THAT CHECKED  
THE PLAN... THEN LOOKED AWAY,  
OR SLYLY LENT US EXPERTS...

AND YET... MY QUEST HAD TAUGHT  
ME. THE CRUCIAL INGREDIENTS...



...WERE HUMAN.

PRIDE IN NATION  
& COMMUNITY...

...LOVE OF PROGRESS,  
CIVILIZATION...

...CURIOSITY AND CRAFT...



...AND A WORLD WHOSE  
DAMAGE CAN BE HEALED  
BY CARING SKILL.

A NERDY LOVE OF  
PROBLEM SOLVING...

...WHEN WE FRET LESS  
ABOUT BLAME, DOGMAS,  
OR RECRIMINATIONS...

...AND A FUTURE...

...AND CARE MORE ABOUT...

...DOING THE NEXT  
GREAT THING.

**NEWS ITEM AUGUST 2010**

"One of the biggest challenges we  
face as a Nation is the decline in  
our ability to make things."  
—Dr. Regina Dugan, Director of  
DARPA. (DARPA is investing \$1  
billion in alternative design and  
production methods, enabling new  
generations of modular, networked,  
"seamless," and democratized  
manufacturing.)

**THE END**



## MORE FOR INQUIRING MINDS ABOUT "TINKERERS"

**ABOUT THE BRIDGE:** In selecting a design, we could have gone with some of today's beautiful modern styles, like inclined cable-stayed spans. But we felt a hankering to portray something new—a class of structures never seen by most of you—that may become more common in the 2020s. As it turns out, there is a concept called tensegrity that was first explored in 1948 by the artist Kenneth Snelson and popularized by Buckminster Fuller. Tensegrity is now the very latest approach to bridge design, as illustrated by the first-of-its-kind Kurilpa Bridge in Brisbane, Australia. (See: <http://bit.ly/aOWFc2>)

**NEOMAKE:** For more about the quest for new manufacturing methods, here's the DARPA research program (<http://bit.ly/8VqPxx>) and A FRAMEWORK FOR REVITALIZING AMERICAN MANUFACTURING. (<http://bit.ly/9dmRhF>)

*MAKE* is the leading do-it-yourself magazine, filled with fun projects and bold notions about an improvable tomorrow, while *INSTRUCTABLES* is a big DIY community where people make and share entertaining/useful projects and hacks.

Care to get involved, helping turn on the next generation to engineering excellence? Learn about sponsorship or mentoring opportunities with the FIRST Robotics League. ([www.usfirst.org](http://www.usfirst.org))

**MANUFACTURING IN FICTION:** There are intelligent science fiction tales about this topic, ranging from darkly pessimistic to profoundly optimistic. Take these older works: *PLAYER PIANO* by Kurt Vonnegut Jr., *THE MIDAS PLAGUE* by Fred Pohl, or *WALDO* by Robert Heinlein. And more recent tales: *NANO COMES TO CLIFFORD FALLS*, by Nancy Kress, *MAKERS* by Cory Doctorow, or *ACCELERANDO* by Charles Stross. (Or some of my own novels!)

Some of the ambiance of our graphic novel arose out of the marvelous Steam Punk Movement. ([www.steampunkworkshop.com](http://www.steampunkworkshop.com))

Readers are encouraged to engage in follow-up discussions about the many issues (some of them deliberately controversial!) raised by this story. There is a Facebook group, logically enough called "Tinkerers," that should get things going. Groups are also welcome to create their own discussion sites and announce them on the Facebook page. (Let's look past the old clichés that have done so much harm to a nation of pragmatists! Negotiate with one another.)

Finally, I'd like to thank our artist Jan Feindt and his agent Jodie Hein, as well as art director Gretchen Kirchner, *FORWARD* magazine managing editor Elizabeth Ecker, Steve Weiner, our editor-impressario, who shepherded the whole crazed process (see <http://forward.msci.org> for more on this business thought leadership magazine), and especially Michael Hoffman, CEO of Macsteel USA, for championing the use of this art form to raise the banner of manufacturing. I also thank my young scripting campadre, Jason Land. All of these people worked under incredible time pressures to get the job finished for this issue of the magazine. In the rush, a lot had to be simplified or left out. But if our story provokes argument, fresh insights or a new determination in just a few, to forge ahead to a bold future of solutions, then we'll have done some good...while having fun.

—DAVID BRIN  
[WWW.DAVIDBRIN.COM](http://WWW.DAVIDBRIN.COM)

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### BOOKS BY DAVID BRIN

#### NOVELS

Earth  
The Postman  
Startide Rising  
The Uplift War  
The Practice Effect...  
and others

#### GRAPHIC NOVELS

The Life Eaters  
Forgiveness

#### MOVIES

The Postman

#### NONFICTION

The Transparent Society:  
Will Technology Make Us  
Choose Between Privacy and  
Freedom?